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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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## STORAGE TECHNOLOGY CORPORATION

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Louisville, CO 80028-4309

EXAMINER
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RODRIGUEZ, GLENDA P

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

✓  
10/034,362

Applicant(s)

HENNECKEN ET AL.

Examiner

Glenda P. Rodriguez

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5, 6, 9-11, 14, 19 and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Ozdemir et al. (US Patent No. 6, 775, 084).

Regarding Claim 13, Ozdemir et al. teaches an apparatus, comprising:

A first read head disposed to reference regions from a moving storage medium, which is moving relative to the first read head, to generate a timing signal (See Fig. 1, Element 18);

A phase detector having an input, a second input and an output, the timing signal being coupled to the first input of the phase detector (Fig 1, Element 26); and

A voltage-control oscillator having an input and an output, the output of the phase detector being fed into the control input of the voltage control oscillator, and the output of the voltage control oscillator being coupled to the second input of the phase detector, to form a phase lock loop wherein the voltage control oscillator is locked to the timing signal to generate a signal representing the data transfer rate (Fig. 1, Elements 24 (which is the phase lock timing loop according to Col. 3, L.

21-25 according to Ozdemir et al. and Element 12, which is the voltage control oscillator or VCO. See also description of Fig. 1.).

Method claim (1) is drawn to the method of using the corresponding apparatus claimed in claim (13). Therefore method claim (1) corresponds to apparatus claim (13) and is rejected for the same reasons of anticipation as used above.

Storage medium product claim (23) is drawn to the method of using the corresponding apparatus claimed in claim (13). Therefore storage medium product claim (23) corresponds to apparatus claim (13) and is rejected for the same reasons of anticipation as used above.

Regarding Claim 5, Ozdemir et al. teach all the limitations of Claim 1. Ozdemir et al. further teach wherein the variable frequency oscillator is a voltage-controlled oscillator (Fig. 2, Element 26).

Regarding Claim 6, Ozdemir et al. teach all the limitation of Claim 1. Ozdemir teaches reading the medium according to the speed of the moving medium (See Col. 1, L. 45 to Col. 3, L. 25, wherein it teaches that the read head receives the information from the medium and the rate is adjusted, therefore adjusting the speed of the medium in order to effectively read the data at an appropriate rate).

Regarding Claims 9 and 10, Ozdemir et al. teach all the limitations of Claim 1. Ozdemir et al. further teaches wherein the medium is a magnetic disk (See Fig. 1, Element 16).

Regarding Claims 11 and 19, Ozdemir et al. teach all the limitations of Claims 1 and 13, respectively. Ozdemir et al. further teach wherein the reference regions on at least one track from a plurality of tracks located on the moving storage medium (Col. 1, L. 45-65, wherein it

teaches the signal being sampled and from the sampling (from the reference regions) the timing being extracted and controlled.).

Regarding Claim 14, Ozdemir et al. teach all the limitations of Claim 13. Ozdemir et al. further teaches a filter being coupled to the input of the VCO (See Fig. 1, Element 28).

Regarding Claims 24 and 25, Ozdemir et al. teach all the limitations of Claim 23. Ozdemir teaches that the recording surface has a direction of motion (Col. 1, L. 45-65, wherein it teaches that in a moving surface the read head receives sampled, therefore making the medium a directional moving medium, wherein the disk it would be circular).

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2, 7, 8, 12, 20-22 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozdemir et al. in view of Albrecht et al. (US Patent No. 6, 021, 013).

Regarding Claim 2, Ozdemir et al. teach all the limitations of Claim 1. However, Ozdemir et al. does not explicitly teach wherein each of said reference regions extends in a second direction that is perpendicular to said first direction and respective reference regions are interleaved with timing based servo regions that extend along diagonals with respect to said first and second direction. This limitation is taught by Albrecht et al. in Figs. 4-6, wherein it teaches the servo timing patterns, one being vertical to the movement of the read head throughout the tape (See Fig. 2 of Albrecht et al.) and the other diagonal to the perpendicular servo pattern. It

would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ozdemir et al.'s invention with the teaching of Albrecht et al. in order to the directionality of the servo regions in order to determine the timing in the medium and therefore, the position of the head as explained by Albrecht et al. in the Summary of the Invention.

Regarding Claims 7 and 8, Ozdemir et al. teach all the limitations of Claim 1. However, Ozdemir et al. does not explicitly teach wherein the medium is a tape. Albrecht et al. teaches a magnetic tape medium as seen in Fig. 2.

Regarding Claim 12, Ozdemir et al. teach all the limitation of Claim 2. Ozdemir teaches reading the medium according to the speed of the moving medium (See Col. 1, L. 45 to Col. 3, L. 25, wherein it teaches that the read head receives the information from the medium and the rate is adjusted, therefore adjusting the speed of the medium in order to effectively read the data at an appropriate rate).

Regarding Claims 20-22, 27 and 28, Ozdemir et al. teach all the limitations of Claims 13 and 23, respectively. However, Ozdemir et al. does not explicitly teach wherein the reference regions are extended in a different direction from a direction of motion, that are perpendicular and that they are interleaved. Albrecht et al. teaches the servo reference timing regions to be in a different direction from a direction of motion, that are perpendicular and interleaved as observed in Figs. 2 and 4-6.

Regarding Claim 26, Ozdemir et al. teach all the limitations of Claim 24. However, Ozdemir et al. does not explicitly teach wherein the motion is linear. Albrecht et al. teaches in Fig. 2, a tape medium and head wherein its motion is linear according to the tape length.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozdemir et al. (US Patent No. 6, 775, 084) in view of Landman et al. (US Patent No. 6, 028, 488). Ozdemir et al. teach all the limitations of Claim 14. However, Ozdemir et al. does not explicitly teach wherein the filter is a digital filter. Landman et al. teaches the use of a digital filter in a phase detector (Pat. No. 6, 028, 488; Col. 1, L. 62-67). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ozdemir et al.'s invention in order to have a much better noise immunity (Pat. No. 6, 028, 488; Col. 2, L. 1-5).

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozdemir et al. (US Patent No. 6, 775, 084) in view of Zortea et al. (US Patent No. 6, 389, 090). Ozdemir et al. teach all the limitations of Claim 14. However, Ozdemir et al. does not explicitly teach wherein the filter is an analog filter. However, this feature is well known in the art as disclosed by Zortea et al., wherein it teaches the use of a analog filter in a phase detector (Pat. No. 6, 389, 090; Col. 2, L. 15-25). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ozdemir et al.'s invention in order to generate pulses which are proportional to the phase errors (Pat. No. 6, 389, 090; Col. 2, L. 15-25).

7. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozdemir et al. (US Patent No. 6, 775, 084) in view of Contreras et al. (US Patent No. 5, 995, 306).

Regarding Claims 17 and 18, Ozdemir et al. teach all the limitations of Claim 13. However, Ozdemir et al. does not explicitly teach wherein a memory buffer, a write head and a second read head. Contreras et al. further teach a memory buffer and a write head among a plurality of read/write heads that read/write data from the memory buffer to the moving storage

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medium at a rate proportional to the data transfer rate (Col. 41, L. 42-57). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ozdemir et al.'s invention with the teaching of Contreras et al. in order to control the data.

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozdemir et al. (US Patent No. 6, 775, 084) in view of Gillingham et al. (US Patent No. 6, 075, 666). Ozdemir et al. teach all the limitations of Claim 23. However, Ozdemir et al. does not explicitly teach wherein the reference regions are recorded at a first frequency and the servo bands are recorded at a second frequency that is distinct from the first frequency. However, this feature is well known in the art as disclosed by Gillingham et al., wherein it teaches regions that are recorded at a first frequency and the servo bands are recorded at a second frequency that is distinct from the first frequency (Pat. No. 6, 075, 666; Col. 2, L. 57 to Col. 3, L. 22. Gillingham et al. teach the use of plural frequencies in order to monitor the tape head position.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ozdemir et al.'s invention in order to control the head relative to the position to the tape.

9. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozdemir et al. (US Patent No. 6, 775, 074) in view of Abe (Derwent Acc No. 1992-167403).

Regarding Claim 3, Ozdemir et al. teach all the limitations of Claim 1. However, Ozdemir et al. does not explicitly teach wherein locking a variable frequency oscillator to the timing signal to generate a data transfer rate. Abe teaches locking a variable frequency oscillator to the timing signal to generate a data transfer rate (Derwent Acc-No. 1992-167403; See USE/ADVANTAGE). It would have been obvious to a person of ordinary skill in the art, at the



time the invention was made, to modify Contreras et al.'s invention in order to accommodate large changes in data transfer rate (Derwent Acc-No. 1992-167403; See USE/ADVANTAGE).

Regarding Claim 4, the combination of Ozdemir et al. and Abe teach all the limitations of Claim 3. The combination further teach wherein locking the variable-frequency oscillator includes bringing a phase-locked loop into lock (Derwent Acc-No. 1992-167403; See USE/ADVANTAGE).

### *Response to Arguments*

10. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new grounds of rejection due to the newly amended Claims made by the Applicant in the Amendment filed on 10/29/2004.

### *Conclusion*

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (571) 272-7561. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
gpr  
10/25/05.

  
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